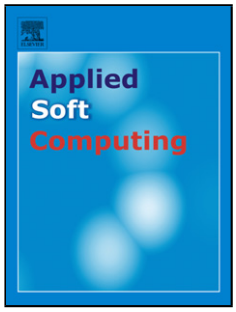

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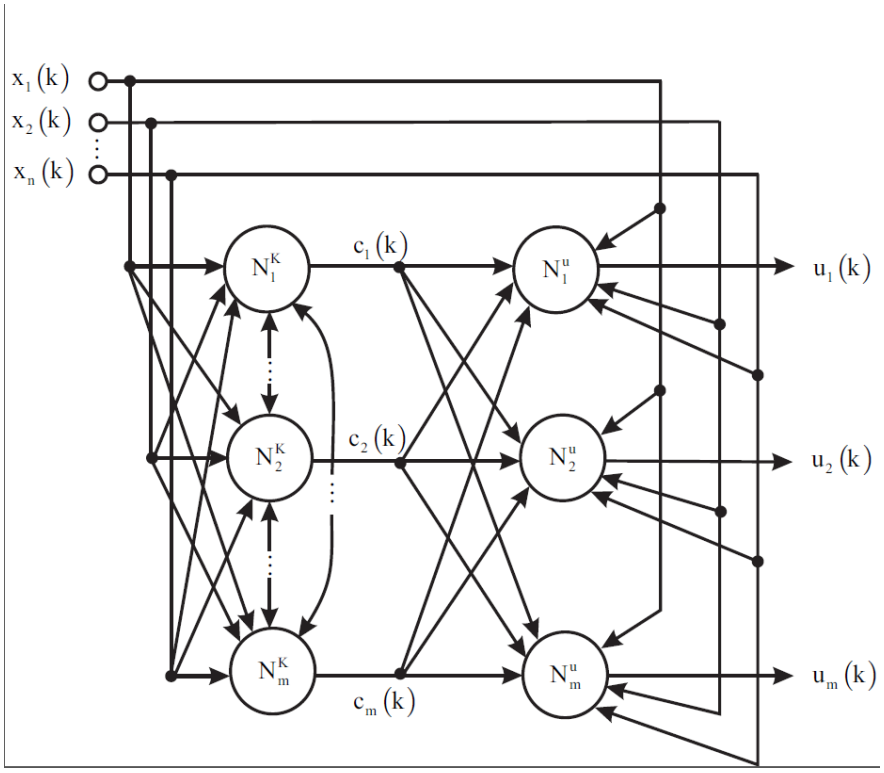
A Neuro-Fuzzy Kohonen Network for Data Stream Possibilistic Clustering and Its Online Self-Learning Procedure

Zhengbing Hu[1], Yevgeniy V. Bodyanskiy[2], Oleksii K. Tyshchenko[2], Olena O. Boiko[2]

[1]hzb@mail.ccnu.edu.cn, [2]yevgeniy.bodyanskiy@nure.ua, [2]lehatish@gmail.com, [2]olena.boiko@ukr.net
[1]School of Educational Information Technology, Central China Normal University, 152 Louyu Road, 430079, Wuhan, China
[2]Control Systems Research Laboratory, Kharkiv National University of Radio Electronics, 14 Nauky Ave, Kharkiv, 61166, Ukraine, tel.: +380577021890

Graphical abstract



Highlights

- A task of Data Stream Fuzzy Clustering is considered in the article.
- Modified 2-layer neuro-fuzzy Kohonen network used for possibilistic fuzzy clustering.
- Parameters tuned by a recurrent version of the possibilistic fuzzy clustering method.
- Centers' coordinates and membership levels tuned during the self-learning method.

Abstract

A task of Data Stream Fuzzy Clustering is considered when data is processed sequentially under a priori uncertainty conditions about both a number of clusters and a degree of clusters' overlapping. A modified two-layer neuro-fuzzy Kohonen network is used for solving the possibilistic fuzzy clustering tasks. This system tunes centers' coordinates and membership levels of every pattern to clusters during the self-learning procedure and automatically increases a number of neurons during data processing. A distinguishing feature of the proposed approach is its computational simplicity due to the